

REMARKS

Claims 1-14 and 22 are pending in the present application. Claims 1-14 and 22 have been examined and stand rejected. Claims 1, 2, 5 and 12-14 have been amended. Reconsideration and allowance of the claims are respectfully requested.

THE CLAIMS

Rejection of Claims 1, 6, 7 and 11 Under 35 U.S.C. §102(b) and §102(e)

Claims 1 and 6 stand rejected under 35 U.S.C. §102(b) as being anticipated by Gallagher *et al.* (U.S. Patent No. 5,640,343).

Claims 1, 6, 7 and 11 stand rejected under 35 U.S.C. §102(b) as being anticipated by Johnson *et al.* (U.S. Patent No. 6,185,122).

Claims 1 and 6 stand rejected under 35 U.S.C. §102(e) as being anticipated by Kim (U.S. Patent No. 6,750,540).

Claim 1 of the present invention, as amended, recites:

“An integrated circuit comprising:
a first array of memory cells, each memory cell in the first array comprising a resistive element and a Schottky diode coupled in series and having first and second terminals, the resistive element being formed by a single layer of material, the Schottky diode being formed by two layers, the single layer for the resistive element and the two layers for the Schottky diode being stacked together;

a first plurality of bit lines, one bit line for each column of the first array, each bit line coupled to the first terminal of memory cells in a respective column of the first array; and

a first plurality of word lines, one word line for each row of the first array, each word line coupled to the second terminal of memory cells in a respective row of the first array.”

Applicant submits that claim 1 is not anticipated by Gallagher, Johnson or Kim. None of these references discloses “the resistive element being formed by a single layer of material, the Schottky diode being formed by two layers, the single layer for the resistive element and the two layers for the Schottky diode being stacked together,” as recited in claim 1. These features are clearly shown in FIG. 8 of the present application.

Gallagher discloses a magnetoresistive (MTJ) element being formed by a series of layers 15 through 25. (See FIG. 1B and also column 4, lines 16-25.)

Johnson discloses an antifuse being formed by three layers 41, 42 and 43. (See FIG. 6(a) and also column 12, lines 5-12.)

Kim discloses an MTJ cell 55 formed by a stacked structure of a pinned ferromagnetic layer, a tunnel oxide layer, and a free ferromagnetic layer, which are not shown in FIG. 3. (See column 3, lines 53-56.)

The structure recited in claim 1 may have certain advantages, e.g., with regard to manufacturing, over the structures disclosed by Gallagher, Johnson and Kim.

Claim 1 is thus not anticipated by Gallagher, Johnson or Kim. Claims 6, 7 and 11 are dependent on claim 1 and are not anticipated by Gallagher, Johnson or Kim for at least the reason noted for claim 1.

Accordingly, the §102(b) and §102(e) rejection of claims 1, 6, 7 and 11 should be withdrawn.

Rejection of Claim 5 Under 35 U.S.C. §103(a)

Claim 5 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Gallagher *et al.* in view of Shanks (U.S. Patent No. 4,203,123).

Claims 2-4 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kim in view of Rinerson (U.S. Patent No. 6,870,755).

Claims 8-10 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Kim in view of Rinerson and further in view of Marquot *et al.* (U.S. Patent No. 5,978,262).

Claims 12 and 13 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson *et al.* in view of Marquot *et al.*

Claim 14 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson *et al.* in view of Marquot *et al.* and further in view of Shanks.

Claim 22 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Johnson *et al.* in view of Smith *et al.* (U.S. Patent No. 6,625,055).

Claims 2-5, 8-10 and 22 are dependent on claim 1. Gallagher, Johnson and Kim do not disclose all of the elements of base claim 1, as noted above. Hence, Gallagher, Johnson and Kim are insufficient basis for the §103(a) rejection of claims 2-5, 8-10 and 22.

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Claim 12 has been amended to recite the features noted above for claim 1. Johnson does not disclose these features and is thus an insufficient basis for the §103(a) of claim 12. Claims 13 and 14 are dependent on claim 12 and are patentable for at least the reason noted for claim 12.

Accordingly, the §103(a) rejection of claims 2-5, 8-10, 12-14 and 22 should be withdrawn.

CONCLUSION

Applicant believes all claims now pending in this application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at (650) 289-0600.

Respectfully submitted,



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